

**Amendments to the Claims:**

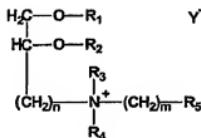
This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

Claims 1-67 (Canceled).

68. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:

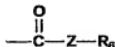


wherein R<sub>1</sub> and R<sub>2</sub> are identical and are selected from the group consisting of C<sub>14</sub>H<sub>29</sub> and C<sub>12</sub>H<sub>25</sub> independently H; linear or branched, unsubstituted or substituted C<sub>1-23</sub> alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of —(CH<sub>2</sub>)<sub>k</sub>—CH<sub>3</sub>, —S—(CH<sub>2</sub>)<sub>k</sub>—CH<sub>3</sub>, and —X—(CH<sub>2</sub>)<sub>k</sub>—, wherein X is a halide, and k is 0 to 4;

R<sub>3</sub> and R<sub>4</sub> are independently H; linear or branched, unsubstituted or substituted C<sub>1-23</sub> alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are

selected from the group consisting of  $[-0-(CH_2)_k-CH_3]$  -O-(CH<sub>2</sub>)<sub>k</sub>-CH<sub>3</sub>, -S-(CH<sub>2</sub>)<sub>k</sub>-CH<sub>3</sub>, and X-(CH<sub>2</sub>)<sub>k</sub>-, wherein X is a halide, and k is 0 to 4;

R<sub>5</sub> has the structure



wherein Z is selected from the group consisting of O, S, NR<sub>1</sub>, NH, [[and S]] and Se;

R<sub>6</sub> is selected from the group consisting of H, [[R<sub>1</sub>, R<sub>2</sub>]] R<sub>3</sub>, and R<sub>4</sub>, and, when Z is O, NH, NR<sub>1</sub>, or S, R<sub>6</sub> can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent, wherein Z is an atom of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent;

n is 1 to 6;

m is 1 to 10;

Y is a pharmaceutically acceptable anion; and

R<sub>7</sub> and R<sub>8</sub> independently or in combination are H or alkyl groups as defined for R<sub>1</sub> and R<sub>2</sub>;

wherein if Z is O, n is 1, and m is 3, then R<sub>6</sub> is selected from the group defined for R<sub>3</sub> and R<sub>4</sub> and wherein R<sub>1</sub> and R<sub>2</sub> are not both H; and

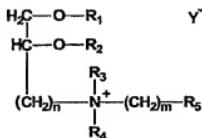
(b) contacting a cell with the lipid complex formed in step (a);

whereby a biologically effective amount of the anionic molecule is delivered into the cell[[;]] and wherein R<sub>1</sub> and R<sub>2</sub> are identical and are selected from the group consisting of C<sub>14</sub>H<sub>29</sub> and C<sub>12</sub>H<sub>25</sub>.

Claims 69-70 (Canceled).

71. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:

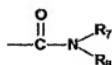


wherein

$\text{R}_1$  and  $\text{R}_2$  are identical and are selected from the group consisting of  $\text{C}_{14}\text{H}_{29}$  and  $\text{C}_{12}\text{H}_{25}$  saturated or unsaturated  $\text{C}_{10}$ - $\text{C}_{18}$  alkyl groups;

$\text{R}_3$  and  $\text{R}_4$  are independently H; linear or branched, unsubstituted or substituted  $\text{C}_{1-23}$  alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of  $-\text{O}-(\text{CH}_2)_k-\text{CH}_3$ ,  $[(\text{CH}_2)_k-\text{CH}_3,]-\text{S}-(\text{CH}_2)_k-\text{CH}_3$ , and  $\text{X}-(\text{CH}_2)_k-$ , wherein X is a halide, and k is 0 to 4;

$\text{R}_5$  has the structure:



$\text{R}_7$  and  $\text{R}_8$  are independently selected from the group defined for  $[(\text{R}_1, \text{R}_2)]$   $\text{R}_3$  and  $\text{R}_4$  and one of  $\text{R}_7$  and  $\text{R}_8$  can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent, wherein an amino nitrogen of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent is the N to which  $\text{R}_7$  or  $\text{R}_8$  is attached;

n is 1 to 6;

m is 1 to 10; and

Y is a pharmaceutically acceptable anion; and

(b) contacting a cell with the lipid complex formed in step (a);  
whereby a biologically effective amount of the anionic molecule is delivered into the cell.

72. (Cancelled).

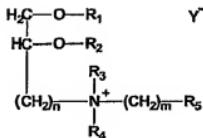
73. (Currently Amended) The method according to claim 71 [[72]], wherein R<sub>3</sub> and R<sub>4</sub> are selected from the group consisting of C<sub>1</sub>-C<sub>5</sub> alkyl groups and C<sub>1</sub>-C<sub>5</sub> heteroalkyl groups having one heteroatom therein.

74. (Previously Presented) A method according to claim 73, wherein R<sub>3</sub> and R<sub>4</sub> are methyl groups.

Claims 75-84 (Cancelled).

85. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

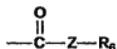
(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:



wherein R<sub>1</sub> and R<sub>2</sub> are independently H; linear or branched, unsubstituted or substituted C<sub>1-23</sub> alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of  $-\text{O}-(\text{CH}_2)_k-\text{CH}_3$ ,  $[-0-(\text{CH}_2)_k-\text{CH}_3,]$   $-\text{S}-(\text{CH}_2)_k-\text{CH}_3$ , and  $\text{X}-(\text{CH}_2)_k-$ , wherein X is a halide, and k is 0 to 4;

R<sub>3</sub> and R<sub>4</sub> are independently H; linear or branched, unsubstituted or substituted C<sub>1-23</sub> alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of -O-(CH<sub>2</sub>)<sub>k</sub>-CH<sub>3</sub>, [[-O-(CH<sub>2</sub>)<sub>k</sub>-CH<sub>3</sub>,]] -S-(CH<sub>2</sub>)<sub>k</sub>-CH<sub>3</sub>, and X-(CH<sub>2</sub>)<sub>k</sub>-, wherein X is a halide, and k is 0 to 4;

R<sub>5</sub> has the structure



wherein Z is selected from the group consisting of [[O, S,]] NR<sub>1</sub>, and NH [[L, and S,]]; R<sub>6</sub> is selected from the group consisting of H, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub>, and, when Z is O, NH, NR<sub>1</sub>, or S; R<sub>6</sub> can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent, wherein Z is an atom of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent;

n is 1 to 6;

m is 1 to 10;

Y is a pharmaceutically acceptable anion; and

R<sub>7</sub> and R<sub>8</sub> independently or in combination are H or alkyl groups as defined for R<sub>1</sub> and R<sub>2</sub>;

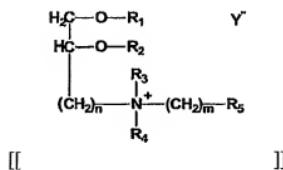
wherein if Z is O, n is 1, and m is 3, then R<sub>6</sub> is selected from the group defined for R<sub>3</sub> and R<sub>4</sub> and wherein R<sub>4</sub> and R<sub>2</sub> are not both H; and

(b) contacting a cell with the lipid complex formed in step (a);

whereby a biologically effective amount of the anionic molecule is delivered into the cell [[;]] and wherein Z is NH or NR<sub>1</sub>.

86. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

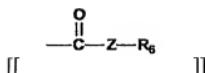
(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:



wherein  $\text{R}_1$  and  $\text{R}_2$  are independently H; linear or branched, unsubstituted or substituted  $\text{C}_{1-23}$ -alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of  $-\text{O}(\text{CH}_2)_k-\text{CH}_3$ ,  $-\text{S}(\text{CH}_2)_k-\text{CH}_3$ , and  $-\text{X}(\text{CH}_2)_k-$ , wherein X is a halide, and k is 0 to 4;

$\text{R}_3$  and  $\text{R}_4$  are independently H; linear or branched, unsubstituted or substituted  $\text{C}_{1-23}$  alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of  $-\text{O}(\text{CH}_2)_k-\text{CH}_3$ ,  $-\text{S}(\text{CH}_2)_k-\text{CH}_3$ , and  $-\text{X}(\text{CH}_2)_k-$ , wherein X is a halide, and k is 0 to 4;

$\text{R}_5$  has the structure



wherein Z is selected from the group consisting of O, S,  $\text{NR}_1$ ,  $\text{NH}$ , and S;

$\text{R}_6$  is selected from the group consisting of H,  $\text{R}_1$ ,  $\text{R}_2$ ,  $\text{R}_3$ , and  $\text{R}_4$ , and, when Z is O,  $\text{NH}$ ,  $\text{NR}_1$ , or S,  $\text{R}_6$  can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent, wherein Z is an atom of said amino

acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent;

n is 1 to 6;

m is 1 to 10;

Y is a pharmaceutically acceptable anion; and

R<sub>7</sub> and R<sub>8</sub> independently or in combination are H or alkyl groups as defined for R<sub>1</sub> and R<sub>2</sub>;

wherein if Z is O, n is 1, and m is 3, then R<sub>6</sub> is selected from the group defined for R<sub>3</sub> and R<sub>4</sub> and wherein R<sub>1</sub> and R<sub>2</sub> are not both H; and

(b) contacting a cell with the lipid complex formed in step (a);

whereby a biologically effective amount of the anionic molecule is delivered into the cell; and wherein said compound is selected from the group consisting of DORIE carboxylate (dioleyl Rosenthal Inhibitor Ether carboxylate), DMRIE carboxylate (dimyristyl Rosenthal Inhibitor Ether carboxylate), DMRIE carboxylate propyl amide, DMRIE carboxylate (methionine-methylester) amide, DMRIE carboxylate (methionine (methionine-leucine-methylester) amide, and DMRIE carboxylate (methionine-leucine-phenylalanine-methylester) amide.

87. (Currently Amended) The method according to claim 71, wherein R<sub>7</sub> and R<sub>8</sub> are independently selected from the group defined for [[R<sub>1</sub>, R<sub>2</sub>]] R<sub>3</sub>, and R<sub>4</sub>.

Claims 88-90 (Canceled).